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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,830	06/30/2005	Sumio Iijima	2004-1984A	8723
513	7590	02/24/2006	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			STADLER, REBECCA M	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/517,830

Applicant(s)

IIJIMA ET AL.

Examiner

Rebecca M. Stadler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/9/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over "Molecular Potential of Heat-Treated Single-Wall Carbon Nanohorn Assemblies" (Hereinafter "Molecular Potential").

The Molecular Potential reference discloses carbon nanohorn assemblies, which are treated with high temperature O₂ (see Experimental Section). According to examples 1 and 2 in Applicant's Specification, the claimed wall openings are created by oxidation heat treatment. The Molecular Potential reference appears to teach all of the limitations of the present invention because the process for synthesizing the carbon nanohorns is the same. As such, the nanohorns in the reference would contain wall openings (by the oxidation step) and would be able to adsorb methane in a supercritical state wherein the methane gas adsorption ability V/Vs is 150 or more. See also Figure 1b wherein the adsorbate is inside the nanohorn. See also Figure 2, illustrating the arrangement of the single-walled nanohorn, which is the same arrangement as the present invention. Finally, see Figure 3, wherein site P_f appears to be an internal adsorbent site, suggesting that there is a hole in the nanohorn allowing the adsorbate to enter the nanohorn so as to reach this site. Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to the applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See e.g., In re Best, 195 U.S.P.Q. 430.

As to claims 2-6, the carbon nano-horns of the prior art are the same as those claimed. Therefore, the prior art nanohorns are capable of the claimed intended uses.

It is held that when the prior art discloses a product that reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. The burden to show a different product is thereby shifted to the applicant, as the Patent Office is not equipped to manufacture products by the myriad of processes put

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before it and then obtain prior art products and make physical comparisons therewith. See e.g., In re Brown, 173 U.S.P.Q. 685, 688 and In re Fessman, 180 U.S.P.Q. 324.

Claims 1-6 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over "Oxidation and Porosity Evaluation of Budlike Single-Wall Carbon Nanohorn Aggregates" (hereinafter "Oxidation").

The Oxidation reference discloses carbon nanohorn aggregates capable of adsorption, which are treated with high temperature oxidation (see Experimental Section). In Examples 1 and 2 in Applicant's Specification, the claimed wall openings are created by oxidation heat treatment. The Oxidation reference appears to teach all of the limitations of the present invention because the process for synthesizing the carbon nanohorns is the same. As such, the nanohorns in the reference would contain wall openings (by the oxidation step) and would be able to adsorb methane in a supercritical state wherein the methane gas adsorption ability V/Vs is 150 or more. See also Figure 4c, which depicts a carbon nanohorn having internal pores (walls) opened by oxidation. Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to the applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See e.g., In re Best, 195 U.S.P.Q. 430.

As to claims 2-6, the carbon nano-horns of the prior art are the same as those claimed. Therefore, the prior art nanohorns are capable of the claimed intended uses.

It is held that when the prior art discloses a product that reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. The burden to show a different product is thereby shifted to the applicant, as the Patent Office is not equipped to manufacture products by the myriad of processes put

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before it and then obtain prior art products and make physical comparisons therewith. See e.g., In re Brown, 173 U.S.P.Q. 685, 688 and In re Fessman, 180 U.S.P.Q. 324.

Claims 1-6 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over "N₂ Adsorption in an Internal Nanopore Space of Single-Walled Carbon Nanohorn: GCMC Simulation Experiment" (hereinafter "N₂ Adsorption").

The N₂ Adsorption reference discloses carbon nanohorn aggregates, which are treated with high temperature oxidation (see Experimental Section). In Examples 1 and 2 in Applicant's Specification, the claimed wall openings are created by oxidation heat treatment. The N₂ Adsorption reference appears to teach all of the limitations of the present invention because the process for synthesizing the carbon nanohorns is the same. As such, the nanohorns in the reference would contain wall openings (by the oxidation step) and would be able to adsorb methane in a supercritical state wherein the methane gas adsorption ability V/V_s is 150 or more. Further, the reference discloses internal nanospaces in the nanohorns, which demonstrates that the nanohorns have wall openings (see page 372, column 1, lines 7-9 of paragraph Results and Discussion). Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to the applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See e.g., In re Best, 195 U.S.P.Q. 430.

As to claims 2-6, the carbon nano-horns of the prior art are the same as those claimed. Therefore, the prior art nanohorns are capable of the claimed intended uses.

It is held that when the prior art discloses a product that reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. The burden to show a different product is thereby shifted to the applicant, as the Patent Office is not equipped to manufacture products by the myriad of processes put

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before it and then obtain prior art products and make physical comparisons therewith. See e.g., In re Brown, 173 U.S.P.Q. 685, 688 and In re Fessman, 180 U.S.P.Q. 324.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over "Porosity Evaluation of Intrinsic Intraparticle Nanopores of Single Wall Carbon Nanohorn" (hereinafter "Porosity").

The Porosity reference discloses carbon nanohorn aggregates, which are treated with high temperature oxidation (see page 198, column 1, lines 2-3). In Examples 1 and 2 in Applicant's Specification, the claimed wall openings are created by oxidation heat treatment. The Porosity reference appears to teach all of the limitations of the present invention because the process for synthesizing the carbon nanohorns is the same. As such, the nanohorns in the reference would contain wall openings (by the oxidation step) and would be able to adsorb methane in a supercritical state wherein the methane gas adsorption ability V/Vs is 150 or more. See also Figure 1, which depicts a single-wall nanhorn with an interstitial structure. See also Abstract and page 198, column 1, lines 28-30, which discusses the presence of internal nanopores. Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to the applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See e.g., In re Best, 195 U.S.P.Q. 430.

As to claims 2-6, the carbon nano-horns of the prior art are the same as those claimed. Therefore, the prior art nanohorns are capable of the claimed intended uses.

It is held that when the prior art discloses a product that reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. The burden to show a different product is thereby shifted to the applicant, as the Patent Office is not equipped to manufacture products by the myriad of processes put

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before it and then obtain prior art products and make physical comparisons therewith. See e.g., In re Brown, 173 U.S.P.Q. 685, 688 and In re Fessman, 180 U.S.P.Q. 324.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over "Pore Structure of Single-Wall Carbon Nanohorn Aggregates" (hereinafter "Pore Structure").

The Pore Structure reference discloses a carbon nanohorn with pore structures, which would be able to adsorb gasses (see abstract). The Pore Structure reference discloses micropores and mesopores (see page 14, column 2, line). The nanohorns would be capable of adsorbing many gasses because of the different sizes of the pores. Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to the applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. See e.g., In re Best, 195 U.S.P.Q. 430.

As to claims 2-6, the carbon nano-horns of the prior art are the same as those claimed. Therefore, the prior art nanohorns are capable of the claimed intended uses.

It is held that when the prior art discloses a product that reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. The burden to show a different product is thereby shifted to the applicant, as the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith. See e.g., In re Brown, 173 U.S.P.Q. 685, 688 and In re Fessman, 180 U.S.P.Q. 324.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca M. Stadler whose telephone number is 571-272-5956.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Rebecca M. Stadler


COLLEEN P. COOKE
PRIMARY EXAMINER